AP Calculus - 1st Quarter Problem Set #2 – Due:\_\_\_\_\_\_

1. For the function use the limit definition of the derivative to find:
2. The slope of the tangent line to curve at x = 1
3. A function that could be used to find the instantaneous rate of change of for any x value.
4. Your friend is trying to use the limit definition of the derivative to find the slope of a tangent line to a function at a particular point. You friend’s problem is set up below:



1. For what function will the above limit give the derivative?
2. At what x value will the above limit give the derivative?
3. Write the equation for the line tangent to at x = 8.
4. You are driving to your job which is 1.8 miles away. The average rate of change of your position for the journey was 36 mph. How long did it take you to get to work?
5. You are trying to approximate the instantaneous rate of change for the function at . Do so by taking successively closer average rates of change on both sides on . Take at least 4 AROCShow your charts below.
6. Find for
7. Find for
8. Explain, using limits, why the function is not differentiable at x = 0.
9. Given the function , which values of a and b will make f’(x) at x = 3?